



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Institute of Standards and Technology**  
Gaithersburg, Maryland 20899-0001

DATE: 12 February 2014

**Product Identifier**

**SRM Number:** 2133  
**SRM Name:** Phosphorus Implant in Silicon Depth Profile Standard

Under the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1200, this Standard Reference Material (SRM) is NOT classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified. There are no hazard pictograms, hazard statements or signal word associated with it. Safety Data Sheet information is not required. This document may be used in conjunction with your hazard communication program.

**Exemption:** 1910.1200 (c). This SRM is an Article, as the word is defined by OSHA, where *Article* means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of 1910.1200), and does not pose a physical hazard or health risk to employees.

**Description:** This SRM is intended for use in calibrating secondary ion response to minor and trace levels of phosphorus in a silicon matrix by the analytical technique of secondary ion mass spectrometry (SIMS). SRM 2133 is intended for calibrating the response of a SIMS instrument for phosphorus in a silicon matrix under a specific set of instrumental conditions. It may also be used by a laboratory as a transfer standard for the calibration of working standards of phosphorus in silicon. This SRM consists of a 1 cm × 1 cm single crystal silicon substrate that has been ion-implanted with the isotope  $^{31}\text{P}$  at a nominal energy of 100 keV.

**Disposal:** SRM 2133 should be disposed of in accordance with local, state, and federal regulations.

**Transport Information:** This material is not regulated by the U.S. Department of Transportation (DOT) and/or International Air Transportation Association (IATA).

**Disclaimer:** This document was prepared carefully, using current references. Users of this SRM should ensure that this document and the corresponding Certificate of Analysis in their possession are current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail [srmmsds@nist.gov](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.